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ABSTRACT

Information is presented on a study designed to collect data on the characteristics of research/sponsored programs offices at state-assisted higher education institutions that participate in the Office of Federal Programs (OFP) of the American Association of State Colleges and Universities. Objectives were to describe the characteristics of the offices, examine the characteristics and policies in relation to their success in obtaining federal and non-federal funding, and suggest models and successful approaches at large, mid-sized, and small institutions that could inform professional practice in this field. Data were obtained as part of the overall research/sponsored programs data collection activity, which used a six-part survey. Forty-six of 106 OFP institutions responded. The survey asked for data on institutional demographics and grants office characteristics (such as office functions, organizational patterns, financial and personnel resources, and general institutional policies). Results indicate that, for these institutions, the characteristics most likely to promote success in obtaining federal funding involve direct and sustained commitment from institutional administrators and faculty. Though cultivation activations like data dissemination, assistance with proposal development, and recognition of faculty seeking funds are not significantly related to direct success, they are necessary as seed activities to enhance the research/grants seeking climate. Contains 15 references. (Author/SM)

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Federal Funding of Higher Education Proposals: Relationship of Research/Sponsored Programs Office Characteristics to Success Rates

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Abstract

This study was designed to collect information about the characteristics of research/sponsored programs offices at state-assisted higher education institutions that participate in the Office of Federal Programs of the American Association of State Colleges and Universities. Relationships between the activities of the 46 respondent offices, selected demographics of their institutions, and their success in receiving federal funding are explored and comparisons between institutions of three size categories are made. Principal components of "success," "effort," and "demographics" are identified and a linear mathematical model that predicts a success component from one source of effort is proposed. Suggestions for potential use of the model and discussion of further directions of study are given.

The American Association of State Colleges and Universities (AASCU) is a national organization comprised of state-assisted comprehensive higher education institutions (i. e., those that are not major research universities). During the past ten years there has been phenomenal growth in research/sponsored programs offices at all sizes of AASCU member institutions. This growth has occurred for a number of reasons, the two major ones being (1) an increased emphasis on research as part of the institutional mission and (2) the decreased or status-quo level budgets provided in the past decade by their primary funding source--state governments--which has required pursuit of other funding sources to mount new program or research initiatives.

Because specifically designated units charged with responsibility for facilitating research/sponsored programs activities are still a relatively new addition to these public institutions' structure, with fewer than one-third of the offices having existed 15 years ago (Davis, 1988), the organizational models and staffing patterns used, the roles and responsibilities of grants officers, the types and levels of activity, and the effectiveness of fund-seeking efforts are only beginning to be explored.

In cooperation with a university researcher from an AASCU institution, the AASCU Office of Federal Programs, which provides training, technical support, and information

to many of these offices, initiated a survey that was designed to gather information about the organization, staffing patterns, activities, policies, and success rates of the offices. The objectives of the overall study were:

(1) to describe the characteristics of the research/sponsored programs offices at OFP participating AASCU institutions and the institutional policies that provide the context for these offices;

(2) to examine these characteristics and policies in relation to their success in obtaining both federal and non-federal funding; and

(3) to suggest models of successful approaches at large, mid-sized, and small institutions that could inform professional practice in this rapidly developing field.

Background

Although a number of studies describing the characteristics of research/sponsored programs offices and the officers who direct them have been reported in the literature (e. g., Davis, 1988; Rodman & Dingerson, 1979; Shisler, Dingerson, & Eveslage, 1987; Wangberg, 1987), little is known about how the success rates of various types of institutions are influenced by the characteristics of those offices. In a guide for

program development to increase success in acquiring sponsored funding. Mishler (1988) indicates that the major correlates of success, especially at research institutions, are factors related to stable characteristics of the institutions (e. g., size, degree levels offered, location, past funding history) and individual characteristics of faculty (e. g., number of publications). Data on the relationship of success to variables such as institutional commitment to research support or characteristics and activities of research/sponsored programs offices are either lacking or unclear. Mishler stresses the importance of institutional commitment from the highest level institutional officers if a research/sponsored programs mission is to be successful; however, measures of this commitment have not been systematically collected.

Studies that have collected information on characteristics of research/sponsored programs offices and their administrators have presented a fairly consistent picture of those characteristics. Shisler, Dingerson, and Eveslage (1987) studied a group of National Council of University Research Administrators (NCURA), examining many facets of the research/grants administrators' role, and concluded that "a broad range of organizational arrangements and task assignments are represented" (p. 11). In a study of members of the

Society of Research Administrators, Rodman and Dingerson (1979) found a relationship between the educational level of the grants administrators and the nature of their job responsibilities. Walsh (1986) described a review process for evaluating the organization and management effectiveness of a research/sponsored programs office but he did not examine funding success levels of the office. Muffo and Cocari (1982) looked at predictors of funding success in AASCU institutions and found that, in addition to institutional characteristics such as presence of doctoral programs and location in a metropolitan area, the presence of a separate research administration unit was related to a higher funding level.

Because research/grants offices have been established at small as well as large state-assisted institutions, the characteristics of successful offices may not be common across all of them but specific to the institutional size group. Davis (1988) observed characteristics of institutions with less than five million in yearly funding activity and described their average yearly level of proposal submissions, grant success rates, support services, and faculty development activities. However, she did not examine how research/sponsored programs services and activities influenced the funding success of specific institutions. Wangberg (1987), in a survey of research/grants officers at master's only institutions, reported types of

activities, proposal submission and funding levels, and faculty support efforts. Her data indicate that these institutions vary widely in proposal submission activity as well as success levels.

In 1982 Tracy conducted a study of characteristics of the research/sponsored programs offices of the three size categories of institutions then participating in the Office of Federal Programs and concluded that there were similarities and differences in the profiles for each size group. The three groups differed on the overall funding level received, although some institutions in each group were more successful in receiving funding than others. Tracy did not look across the size categories to see whether successful and unsuccessful offices in each category had characteristics in common.

In spite of the fact that there is little evidence that specific activities, policies, or administrative practices predict success in grantsmanship, the literature is filled with detailed advice on how to set up and manage research/sponsored programs offices. Organizational models and staffing patterns have been suggested (Balderston, 1985; Rodman, 1983), training methods for research administrators recommended (Lowry, 1983), faculty support initiatives outlined (Harris, 1985; Sink, 1985), and administrators' interpersonal styles analyzed (Darling & Hensley, 1986).

Mishler (1988) states that there are "a host of complex variables" (p. 17) that affect the ability of an institution to move from one concerned predominantly with teaching to one focused on sponsored research. The set of AASCU institutions in the present study include ones who continue to focus most of their institutional mission on teaching, ones that are in transition to a position of increased emphasis on a research mission, and ones that are already committed to a primary research mission. (Of the entire respondent group, 87% indicate teaching; 9% indicate research; and 4% indicate service as the primary institutional mission; 37% indicate research and 50% indicate service as their secondary mission.) For all of these institutions, the ability to be successful in attracting external funding is likely to be influenced by many interrelated (and perhaps conflicting) variables. The analysis presented here is designed to look at some of these variables, in particular as they relate to attracting federal funding. Thus, the specific objectives of this analysis are:

(1) to identify from the survey data one or more "federal funding success indicators" that may be common to offices in institutions of all sizes and/or to offices of institutions of differing size (i. e., small, mid-sized, and large);

(2) to investigate relationships among these "success indicators" and selected demographic

and "effort" characteristics of the research/sponsored programs offices and their institutions; and

(3) to suggest a group of features that might characterize models of successful approaches at large, mid-sized, and small institutions, if information gained through analysis of these relationships warrants such suggestions.

Methodology

Data for this report were obtained as part of the overall research/sponsored programs data collection activity, which used a six part survey designed by the principle investigator in collaboration with staff members of the Office of Federal Programs. The purposes of the survey and the methodology to be used were explained at the fall, 1987, OFP meeting for university grants officers and, after final revisions, the survey was sent to OFP participating institutions in late fall. Responses were returned by February, 1988, and data prepared for descriptive analysis during spring and summer of 1988.

Of the 106 OFP participating institutions, 46 completed and returned the survey, for a response rate of 43%. There were 12 Category A (under 4,000 student FTE); 25 Category B (4,000 to 12,000); and 9 Category C (over 12,000) respondents. These categories corresponded to the

organizational categories used by OFP at the time of the survey. Response rates for each category were: A: 39% (12 of 31), B: 50% (25 of 50), C: 36% (9 of 25). One of the limitations of this analysis and all other reports of results is the less than 50% response rate overall and within two categories. Although comparison of the demographic characteristics of this sample with the total group of institutions indicates that the respondent institutions are similar in general demographics to the non-respondent institutions, generalization of results is limited due to the respondent rates.

The survey included information on institutional demographics and on grants office characteristics, including organizational patterns, office functions, financial and personnel resources, research/sponsored programs office and general institutional policies, and activity and funding levels for FY 87. Over 300 data points were recorded for each institution. A report focusing on a general description of research/sponsored programs office characteristics based on the information provided by the respondents is in press (Bergen, 1989). The present (second) report focuses on the relationships among certain characteristics of those offices and selected "success indicators."

Demographic Characteristics of Respondent Institutions.

The respondent institutions have many characteristics similar to those cited in other studies of research/sponsored programs offices. For example, the Category A and B institutions look similar to those institutions described by Davis (1988) in her report of predominantly undergraduate institutions with under five million in external funding. Davis indicated that the majority of these institutions have fewer than 400 faculty and fewer than 7500 students. The Category A and B institutions in the present study have fewer than 400 faculty and fewer than 7500 students. The Category C institutions are more similar to those reported by Shisler, Dingerson, and Eveslage, who indicated that the median number of faculty at institutions in their study was 740 and the median number of students was 10,606. The Category C institutions in the present study have a mean of 700 faculty and a mean of 16,225 undergraduate and graduate students. Because of the larger number of respondents from Categories A and B, the total sample of respondents closely resembles those in the Davis study. Table 1 gives information on respondent demographic characteristics to provide a context for the reported results.

Insert Table 1 about here

Federal Funding Success Indicators for the Respondent Institutions

One of the first questions that had to be addressed if relationships between research/sponsored programs characteristics and success rates were to be examined is that of "what is success?" Especially because there are institutions of various sizes and missions involved in the pursuit of federal funds, the indicators of success and levels within those indicators may be different for institutions with diverse characteristics. For this analysis, therefore, instead of using only the total dollar amount received from federal funding sources, a group of "success indicators" that are part of the entire data set were selected to serve as the dependent measures. The following were used as success indicators (based on FY 87 information):

1. Total dollar value of funding from all external sources
2. Percent of dollars granted of dollars requested
3. Total number of grants funded
4. Percent of grants funded of grants submitted
5. Total of federal funding from top three sources
6. Percent of total funding from top three federal sources
7. Percent of total funding from federal directly funded grants
8. Percent of total funding from federal direct and indirect sources (i. e., state pass-through)

Tables 2 through 5 give descriptive information about these success indicators for the total group and by institution size.

Insert Tables 2 - 5 about here

Selected Characteristics of Research/Sponsored Programs Offices

The specific characteristics of the respondent institutions and their research/sponsored programs offices that might be related to the success indicator variables were also selected from the larger data set. The selected group included demographic variables, such as number of advanced degrees awarded by the institution in FY 87, and activity/services or "effort" variables, such as number of proposals submitted in FY 87. Selection of these variables was based on one or more of these three criteria: (1) having been identified in the research literature as being related to funding success (e. g., presence of doctoral programs (Mishler, 1988)); and/or (2) having been a recurring topic at OFP program officer training seminars (e. g., how to disseminate information effectively); and/or (3) having been a topic of a number of "advice" articles in professional journals in the field (e. g., how to provide faculty development and support activities (Harris, 1985)).

The demographic variables included both characteristics of the institutions and of the role of directors of the research/sponsored programs office, as follows:

1. Number of master's degrees awarded in FY 87
2. Number of doctoral degrees awarded in FY 87
3. Number of research centers/foundations/institutes
4. Number of degrees in allied health, nursing, medicine, and engineering (i. e, high science/technology/health emphasis).
5. Percent of time of director's role assigned to research/sponsored programs office tasks
6. Total number of years experience in research or proposal development of director of research/sponsored programs office

Table 1 gives a summary of the institutional demographic variables. Table 6 describes the role type characteristics of the directors.

The following "effort" variables were also included:

1. Total budget of research/sponsored programs office
2. Total FTE staff of the research/sponsored programs office
3. Total number of activities/services provided by the research/sponsored programs office
4. Total number of faculty proposal development activities provided by the office

5. Total number of information dissemination methods used by the office
6. Total number of institutional recognition methods for faculty seeking or receiving grants
7. Total number of telephone and in-person contact days of institution personnel with federal funding sources
8. Total number of proposals submitted for funding in FY 87
9. Total dollar value of proposal requests in FY 87
10. Total number of faculty submitting proposals in FY 87

These data are summarized in Tables 6-11.

Insert Tables 6-11 about here

Preliminary Analysis Procedures

Relationships between the success indicators and other variables of interest were explored in a number of steps. First, pairwise correlations were calculated between the potential success indicators and the institutional and research/sponsored programs offices demographic and activity/service characteristics. Correlations were also calculated within the three size categories of institutions to determine whether systematic relationships were present for both the overall group

and the institutions in each size category. This preliminary analysis was used to determine whether a principal components analysis of the identified variables was warranted. Because the preliminary analysis indicated that systematic relationships did exist, the principal components analysis was conducted to determine whether one or two composite "success indicators" could be identified to serve as the dependent measure(s) and one to four "characteristics" indicators could be identified to serve as the independent measure(s) for a subsequent linear regression analysis.

Results

Principal Components Analysis. The principal components analysis resulted in identification of two "success indicator," two "demographic," and two "effort" principal components. The analysis of the success indicator variables resulted in the identification of two factors that explained 59.7% of the variance and aggregated two different constellations of variables. They were labeled Success 1: Quantity of Success (included total dollar value of funding, total number of grants funded, total dollar value of highest three federal grants); and Success 2: Percent of Success (included all of the "batting average" measures). These two principal components served as the dependent measures for the regression procedures.

The analysis of the six demographic variables resulted in the identification of two factors that explained 59.5% of the variance. They were labeled Demographics 1: Institutional Type (included level of degrees offered, type of degrees, and presence of research unit); and Demographics 2: Program Officer Type (included years experience as program officer (negative direction) and assignment of time to research/sponsored programs office (positive direction)). These principal components were used as source variables in the test of regression models for the dependent variables.

Two principal components were also identified for the ten "effort" variables; they accounted for 54.9% of the variance. Effort 1: Institutional Direct Commitment, included total budget of the grants office, total office staff FTE, number of proposals submitted, number of faculty submitting proposals, and total dollar value of requests. Effort 2: Institutional Indirect Cultivation, included total number of activities/services provided by the office, number of information dissemination methods used, number of ways faculty recognition is given, and number of FTE days in contact with funding sources. These two principal components were also used as source variables in the test of the regression model for the dependent variables.

Tables 12-14 show the rotated factor patterns for the six principal components.

Insert Tables 12-14 about here

Correlations of the principal components with the input variables indicated that, for the total group of institutions (46 to 35, depending on variable) the components were significantly related to the input variables in the pattern suggested by the principal components analysis. Correlations of these components within the three size groups (N of small sized: 12-8, depending on variable; N of mid-sized: 25 to 20; N of large sized: 9 to 7) indicated a similar significant pattern of relationships, with levels and number of significant relationships greatest for the mid-sized group.

Principal components regressions with Success 1 and Success 2 as the dependent variables and Effort 1 and 2 and Demo 1 and 2 as the independent variables were analyzed. Results for Success 1 showed that for the entire group Effort 1 accounted for 86.5% of the variance and that no combination of the other components with Effort 1 resulted in more than a one point increase in percent accounted for. There were no interactions between the remaining principal components. Success 2 was not predicted by any single component or combination of components. In both cases, a similar pattern of

predictors was demonstrated within institutional size groups, in particular for the mid-sized and large institutions.

Although Demo 1 and Demo 2 showed some predictive influence within size groups, the small number in each group (N = 4, 15, 5) does not warrant an inference. Similarly, athough Effort tended toward having predictive power for both success components in the small sized institutional group, the extremely small N (4) of the group (institutions having scores for all variables) mandates that further exploration is necessary before any inference about a different predictive pattern for small institutions can be made.

Based on the regression analysis of the total group, the development of a linear regression model that could predict Success 1 from Effort 1 seemed warranted and thus this analysis was conducted. These two components were used in the linear regression analysis to determine if a linear mathematical model for predicting success could be suggested.

Model Development. The principal components regression with Success 1 as the dependent variable and Effort 1 as the source variable for the 24 institution group that had scores for all variables was run. The coefficient of Effort 1 was 0.965 ($p = .0001$, $SE = .0811$). A mathematical model that predicts success on the

basis of effort is:

Success 1 = 0.051 + 0.965 * Effort 1

Figure 1 shows this model with the prediction intervals. As the model demonstrates, the intervals are fairly narrow for most of the range and thus the model has good predictability in the low and mid range. Because only a few scores in the higher range were used to form the prediction intervals, the usefulness of the model in predicting success at the higher range is presently unclear.

Insert Figure 1 about here

Discussion and Conclusions

The limited size of the overall respondent group and of the groups in the three size categories of institutions make the results of this study difficult to generalize to the total group of AASCU institutions or even to the total group of institutions who participate in the Office of Federal Programs resources and activities. Nevertheless some conclusions can be made about this sample which suggest hypotheses that might be fruitfully explored in further study with a larger group of subjects.

First, for this group of institutions the results suggest that the characteristics most likely to promote

success in obtaining federal funding involve direct and sustained commitment from both the administrators and the faculty of the institution. Success of these institutions is highly related to the financial and staff resources provided for the research/sponsored programs office and to the time and effort spent by faculty in writing and submitting proposals. In fact, after the principal component of Effort 1, which combines these direct effort variables and predicts 86.5% of the variance, the single variables of number of proposals submitted by faculty and number of different faculty submitting proposals are next most related to success (r = .828;.723). Thus, if advice is to be given to similar institutions that are attempting to increase their level of external funding from federal sources, it would be the old motto, "Try" because funding success seems to be related to faculty direct efforts to get funds and to the institutional resource commitment to achieving this mission.

Further testing of the predictive model is necessary, however, to determine if the predictive capability of the model holds at a similar level for other research/sponsored programs offices in state-assisted institutions. The model will also be tested with the data on non-federal funding success, which is contained in the total data set, to see if Effort 1 predicts Success 1

with non-federal fund totals as well as with federal totals.

While cultivation activities such as information dissemination, assistance with proposal development, recognition of faculty who seek funds, and making contacts with funding agencies are not significantly related to direct success in the overall sample, they may be very necessary as "seed" activities that enhance the research/grants-seeking climate and eventually result in more proposal submissions by faculty and more administrative support for the office and staff. One of the reasons that Effort 2 may not have been a powerful predictor of success with this group is because all of the institutions in the sample are active participants in OFP and most of them are engaged in these cultivation activities. Because the number of cultivation activities provided are very similar for all groups, in this sample there is an insufficient range in scores to discriminate among successful and unsuccessful institutions. It will be necessary to include in the sample institutions which are not participants in OFP in order to test whether Effort 2 has any predictive capability. Further study of the Effort 2 component is also warranted because it may be particularly important as a component determining success of small size institutions. The profile is different for small institutions, with Effort 2 having a higher relationship to success in this group.

The institution type demographic variables that have been reported in other studies as being correlated with success account for only a small proportion of the variance in this study. For the total group the contribution of the component Demo 1 is minimal when compared with the contribution of the the Effort 1 component. However, because there are indications in the analysis of the data by institution size that demographics may play a role, these components need further study. The role time assignment and experience of the research/sponsored programs officer is also in need of further exploration because it may be differentially influential in small and large institutions. Both small and large institutions are more likely to have programs officers who are hired as part time (small) or assigned part time (large) to research/sponsored programs tasks than are mid-sized institutions.

The reasons why Success 2 (Percent of Success) is related to few of the other variables is also in need of further exploration. Certainly "success rate" should be an indicator of success. A potential explanation is that too many success rate measures, some of which may have been conflicting in direction, made this component lacking in usefulness. For example, although for "percent funded of requested proposals" a high percentage is positive, for "percent of federal funding of all funding" a high percentage may or may not be a positive indicator,

depending on the total funding source picture for a particular institution. Reexamination of the success rate component is warranted.

The entire data set includes other information (e. g., on institutional policies, organizational structure, approval processes) that may also be related to success of funding. The effect of gender differences of program officer will also be examined in future analysis.

Because ability to be successful in gaining external funding is important for the institutional health and vitality of most state-assisted institutions in the present climate, the study of the components predicting this success is of continuing research interest.

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Table 1

Characteristics of Respondent Institutions

	Category A	Category B	Category C	Total
Mean FTE in FY 1987				
FT Faculty	145.3	382.9	699.1	382.8
PT Faculty	42.5	63.7	197.1	84.4
Undgrd Stu.	2680.8	6296.5	13984.1	6857.4
Grd Stu.	370.1	853.6	2240.6	998.8
Mean N Degrees Awarded in FY 1987				
Associate	53.8	54.6	98.9	63.1
Baccalaureate	371.7	961.1	2360.3	1081.1
Master's	49.1	241.1	526.7	42.3
Doctoral	0.0	8.4	45.9	13.6
Other	6.9	19.7	16.7	21.1
Percent of Institutions Offering Graduate Level Degrees in:				
Allied Health				
MA/MS	8%	0%	22%	7%
PhD/EdD	10%	8%	11%	7%
Engineering				
MA/MS	0%	12%	11%	9%
PhD/EdD	0%	16%	33%	15%
Nursing				
MA/MS	8%	8%	44%	15%
PhD/EdD	0%	0%	0%	0%
Medical				
PhD/MD	0%	8%	0%	4%
Mean Number of Research Centers, Foundations, or Institutes:	.42	1.48	1.55	1.2

Table 2

Mean Total Dollar Value of Requests/Funding

From all Sources

Institution Size	Category A	Category B	Category C	Total
Requested	$2,443,820	$7,582,075	$33,069,801	$12,812,846
Funded	$ 790,833	$6,808,878*	$ 9,130,721	$ 5,895,300

*Mean includes one institutional grant of $55 million.

Table 3

Mean Total Number of Grants Funded at Institutions Reporting Funding

Institution Size	N	Mean	Percent Funded
Category A	10	17.9	.49
Category B	24	98.6	.63
Category C	9	177.6	.53
All	43	96.3	.58

Table 4

Mean and Median of Dollar Amounts from

Three Highest Federal Sources

Source		Category A	Category B*	Category C	Total
Highest Federal:	X	300,547	3,144,108	3,334,717	2,439,603
			(983,446)		(1,271,594)
	M	195,837	457,320	769,367	463,660
			(450,031)		(457,320)
Second Highest:	X	112,605	530,536	1,040,711	521,327
	M	16,188	199,728	755,162	190,364
Third Highest	X	25,241	218,901	749,185	272,132
	M	0	85,290	359,620	52,177
Total 3 Highest	X	438,393	3,898,546	5,124,613	3,233,063
			(1,472,443)		(2,632,451)
	M	227,511	717,657	1,855,473	685,338
			(702,829)		(682,675)

* One Category B institution received a 55M grant. Means and (Medians) for Category B institutions and for total group are reported with and without this figure included.

Table 5

Percent of Total Funding from

Reported Federal Sources

Institution Size	N	Top 3 Federal Sources (data generated)	All Direct Federal Sources (estimate of respondents)	All Federal Direct and Indirect Sources (estimate of respondents)
Category A	11	.61	.44	.55
Category B	25	.44	.44	.59
Category C	9	.63	.43	.50
Total	45	.52	.44	.56

Table 6

Experience and Time Assignments of

Research/Sponsored Programs Officers

	Category A	Category B	Category C	Total
Mean Years Experience	6.5	11.0	11.5	9.7
Percent Time Assigned to Research/Sponsored Programs Office Tasks	25% Full 25% Half 50% Other PT	72% Full 12% Half 12% Other PT	67% Full 11% Half 22% Other PT	59% Full 15% Half 24% Other PT

Table 7

Staffing Patterns of Research/Sponsored Programs Offices

Institution Size	N	Mean N of Staff			Mean FTE of Staff		
		Prof.	Sec.	Stu.	Prof.	Sec.	Stu.
Category A	12	1.1	.6	1.1	.7	.5	.5
Category B	26	1.8	1.5	1.2	1.6	1.0	1.2
Category C	9	3.9	2.8	3.4	2.8	1.9	2.0

Table 8

Research/Sponsored Programs Office Mean and Median Total Budgets at Institutions Reporting Budget Allocations

Institution Size	N	Mean	Median	SD	Range
Category A	8	43,888	40,311	31495	6674-103,410
Category B	20	145,878	129,242	90527	21,300-377,120
Category C	6	360,217	303,073	241299	86,900-692,450
Total	34	159,705	99,955	156296	6,674-692,450

Total 9

Mean and Median Number of Proposal Development Activities/Services, Information Dissemination Methods, and Recognition Procedures

Institution Size N = 46	Services X	Services M	Information X	Information M	Recognition X	Recognition M
Category A	9.3	10.5	5.7	6	5.8	5.5
Category B	11.4	12	8.2	9	9	8
Category C	11.2	11	8	8	7.2	7
Total	10.8	12	7.5	7	7.7	7

Table 10

Mean and Median Total Number of Faculty Development Activities and FTE Telephone and In-Person Contacts with Federal Agencies

Institution Size N = 46	Faculty Development		Federal Contacts	
	X	M	X	M
Category A	2.3	0	12.7	8.5
Category B	1.3	1	37.2	15
Category C	3.9	2	30.2	18
Total	2.1	1	29.5	14

Table 11

Mean Number of Proposals Submitted for Funding, and Number of Faculty Submitting

Institution Size	N	Proposals Submitted	Faculty Submitting/Receiving
Category A	12	29	25/15
Category B	25	154	53/37
Category C	9	326	175/115
Total	46	155	68/47

Table 12

Rotated Factor Patterns for Principal Components

Success

Variable	Factor 1 (Success 1)	Factor 2 (Success 2)
Total Dollar Value of Funding	.91199*	.05474
Total Number of Grants Funded	.91123*	.13997
Total Federal Funds from Top 3 Sources	.81997*	.34451
Pct. of Federal Direct Grants	.05334	.78012**
Pct. from Federal of Total Dollars	.24758	.61341**
Pct. of Federal Direct & Indirect	.02422	.74319**
Pct.of Grants Funded of Submissions	.15684	-.60420**
Pct. of Dollars of Requested	.20651	-.51559**

*Principal Component: Success 1: Quantity of Success

**Principal Component: Success 2: Percent of Success

Table 13

Rotated Factor Patterns for Principal Components

Demographics

Variable	Factor 1 (Demo 1)	Factor 2 (Demo 2)
Total Number of Research Units	.39357	-.34705
Total Number of Advanced Degrees	.86936*	.25195
Total Number of Health/Tech. Degrees	.84082*	.04461
Total Years Exper. of Programs Officer	.32867	-.58644**
Time Assignment to Research/Sponsored Programs	.07199	.84441**

*Principal Component: Demo 1: Institution Type

**Principal Component: Demo 2: Program Officer Type

Table 14

Rotated Factor Patterns for Principal Components

Effort

Variable	Factor 1 (Effort 1)	Factor 2 (Effort 2)
Total Budget of Grants Office	.86914*	.18170
Total Number of Activities/Services	.13297	.80571**
Total Faculty Devel. Activities	.12347	.13293
Total Information Dissemination	.06170	.88760**
Total Federal Office Contacts	.10410	.31552
Total Office FTE Staff	.79845*	.04744
Total Recognition of Faculty	.05170	.82509**
Total Number of Proposals Submitted	.74593*	.07697
Total Dollar Value of Requests	.70739*	.19247
Total Number of Faculty Submitting	.80818*	.14586

*Principal Component: Effort 1: Institutional Direct Commitment

**Principal Component: Effort 2: Institutional Indirect Cultivation

Figure 1
Model: Success1 = Effort1 + error

Simple Regression X 1 : Effort Y 1 : success

Count:	R:	R-squared:	Adj. R-squared:	RMS Residual:
24	.93	.865	.859	.409

Analysis of Variance Table

Source	DF:	Sum Squares:	Mean Square:	F-test:
REGRESSION	1	23.671	23.671	141.564
RESIDUAL	22	3.679	.167	p = .0001
TOTAL	23	27.349		

No Residual Statistics Computed

Note: 22 cases deleted with missing values.

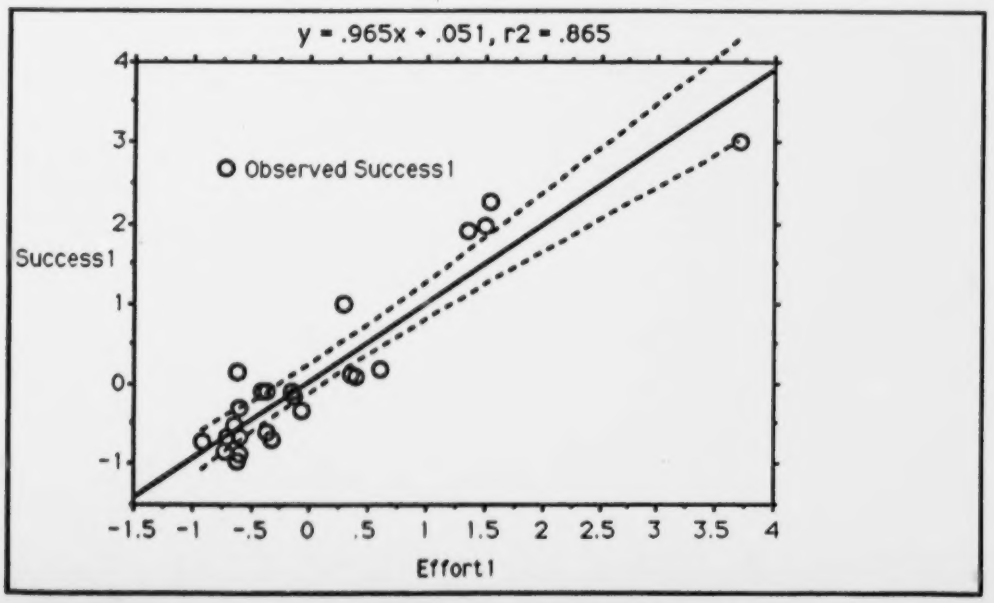
Simple Regression X 1 : Effort Y 1 : success

Beta Coefficient Table

Variable:	Coefficient:	Std. Err.:	Std. Coeff.:	t-Value:	Probability:
INTERCEPT	.051				
SLOPE	.965	.081	.93	11.898	.0001

Confidence Intervals Table

Variable:	95% Lower:	95% Upper:	90% Lower:	90% Upper:
MEAN (X,Y)	-.045	.301	-.016	.271
SLOPE	.797	1.133	.826	1.105



With 95 % confidence limits for Success1